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ABSTRACT

The author wrote this dissertation on the effects of mentoring intervention on student retention in community colleges in May 2002. The goal of the longitudinal study was to inspect the effects of a mentoring intervention program on retention and grade point averages of students at a two-year community college. The data used in the study came from a mentoring program called New Dimensions on the Ivy Tech State College-Central Indiana Region Campus. The study looked at the effects of mentoring and variables such as gender, ethnicity, marital status, and age group on student retention and grade point average. Moman used the College Student Inventory's Dropout Proneness Score to analyze the data in the study. The author concludes that the interaction effect of gender member and mentoring treatment were significant on grade point averages. Age group also had a significant effect on retention and grade point averages. The researcher took these significant effects and then controlled with an Analysis of Covariance for the Dropout Proneness Score. Moman concludes by making recommendations for future studies and additional research that could clarify the effects of mentoring programs. Contains 4 appendices and 56 references. (MZ)

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THE EFFECTS OF A MENTORING INTERVENTION ON STUDENT RETENTION IN A COMMUNITY COLLEGE

A Dissertation

Presented to

The School of Graduate Studies

Department of Educational Leadership and Foundations

Indiana State University

Terre Haute, Indiana

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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by

Frank Moman

May 2002

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APPROVAL SHEET

The dissertation of Frank Moman, Contribution to the School of Graduate Studies, Indiana State University, Series III, Number 886, under the title *The Effects of a Mentoring Intervention on Student Retention in a Community College* is approved as partial fulfillment of the requirements for the Doctor of Philosophy Degree.

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ABSTRACT

The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average of students at a two-year community college. A specific goal was to determine the group of at-risk students, identified by the College Student Inventory's Dropout Proneness Score, that would benefit the most from a mentoring intervention. The mentoring intervention was part of a retention management system called New Dimensions on the Ivy Tech State College—Central Indiana Region campus. Incoming students take the Assessment of Student for Successful Entry and Transfer test and are placed in developmental courses if needed. The college through New Dimensions gives these incoming students the College Student Inventory. The students' results are analyzed by Noel-Levitz and are returned with a number of scales indicating if students have a high potential to dropout of the institution. One scale that indicates the potential of students to leave is the Dropout Proneness Score and that was the scale used in this study.

This study looked at the effects of mentoring and the demographic variables of gender, ethnicity, marital status, and age group on student retention and grade point average. The results indicated that the interaction effect of gender member and mentoring treatment were significant on grade point average. Age group had a significant effect on retention and age group had a significant effect on grade point average. The researcher

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took these significant effects and then controlled with an Analysis of Covariance for the Dropout Proneness Score. The only significant effects were age group on retention and age group on GPA. In this study Dropout Proneness Score could not predict either retention or grade point average.

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Numerous people assisted in the completion of this dissertation. I want to specifically thank my committee members, Dr. Dale Findley and Dr. Eugene Spiess, for their guidance and patience, and my committee chair, Dr. Gregory Ulm, for his encouragement and advice. The support of Ivy Tech State College—Central Indiana, my colleagues, and my cohort classmates were key to the completion of this task and is greatly appreciated. I would like to thank my family and friends for understanding my strange behavior for the past four years. Most importantly, I want to thank my wife, Debbie, for her love, support, encouragement, and understanding, and never letting me give up. Additionally, I want to thank my parents, C. L. and Edna Moman, my children, Shannon, Johanna, Angela, Gregory, and Mike, and cousins, Lewie and Lisa, for their confirmation and encouragement.

TABLE OF CONTENTS

Page

ABSTRACT iii

ACKNOWLEDGEMENTS v

LIST OF TABLES ix

LIST OF FIGURES x

Chapter

1. INTRODUCTION 1

    Significance of the Study 4

    Statement of the Problem 5

    Purpose and Objectives of the Study 6

    Research Questions 6

    Null Hypotheses 7

    Conceptual Framework 7

    Definition of Terms 10

    Assumptions of the Study 11

    Delimitations of the Study 11

    Summary and Overview of the Chapters to Follow 12

2. REVIEW OF LITERATURE 13

    Theories and Models of Attrition and Retention 14

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Dropout Prediction Instruments 18

Intervention Strategies 23

Developmental Classes 23

Freshman Experience 24

Cluster Courses and Environment 24

Centralized Office/Person 25

Collaborative Learning 26

Combination Approach 28

Mentoring 29

Summary of the Review of the Literature 32

3. METHODOLOGY 33

Research Questions 33

Null Hypotheses 34

Rationale for Research Design 34

Identification of Variables 35

Dependent Variables 35

Independent Variables 36

Procedure 37

Part One 37

Part Two 37

Part Three 38

Statistical Analysis 39

Sample 40

Data Collection Process 41

4. RESULTS 42

Analysis Results 44

Question One 44

Question Two 50

Question Three 53

Summary 53

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 55

Analysis of Research Questions and Conclusions 55

Question One 55

Question Two 58

Question Three 60

Discussion 61

Recommendations for Future Study 63

Summary 64

REFRENCES CITED 65

APPENDIXES 72

APPENDIX A 72

APPENDIX B 74

APPENDIX C 77

APPENDIX D 78

LIST OF TABLES

Table — Page

1. Statistical Tests 39
2. ANOVA Summary for Interaction 45
3. Descriptive Data for Significant Interaction 46
4. ANOVA Summary for GPA 46
5. Descriptive Data for Significant GPA 47
6. ANOVA Summary for Retention 48
7. Descriptive Data for Significant Retention 48
8. ANCOVA Summary for Retention 51
9. ANCOVA Summary for GPA 52

LIST OF FIGURES

Figure Page

1. Analysis Conceptual Framework 9

Chapter 1

INTRODUCTION

One of the major goals of higher education is for students to receive degrees, thus benefiting themselves as well as society as a whole (Zusman, 1999). For this educational goal to be achieved, students must stay in college long enough to reach that objective. Higher education currently has a problem with student retention at two and four-year colleges and universities. Retention, defined as students continuously enrolled until they have achieved their educational goals, is not a new problem. It has impacted higher education for the past two to three decades and will continue to be a problem during the early part of the twenty-first century. Higher Education is now trying numerous strategies to improve the student retention rate, but the recent report by the American College Testing (ACT) is not very encouraging (ACT, 2001).

The 2001 ACT report indicated that the freshman dropout rate of two-year institutions increased in 2000 while the four-year institutions of higher education remained the same as in 1999. It indicated the dropout rate of freshman at four-year institutions stayed at 24.9% for 2000. The two-year colleges increased from 44.2 to 44.5. The good news is that the dropout rate remained the same from 1999 to 2000, but the bad news is that the rate for four-year institutions is still higher than each of the respective years from 1987 through 1993. The two-year colleges' rate is also higher for 2000 as

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compared to each year 1987 through 1998 (ACT, 2001). This indicates that retention of freshman students is still a major challenge.

While dropout rates seem to be increasing slightly, the cost of student attrition is still an expensive proposition for colleges. This was confirmed when Sandel and Sydow (1997) used a Noel-Levitz's formula on the Mountain Empire Community College's 1995 first-to-second–year dropout rate. Noel-Levitz is a company of USA Group. Sandel and Sydow showed that by retaining one student to graduation, revenue was increased by $4,025. By decreasing the overall first-to-second-year dropout rate by 10%, the savings to Mountain Empire Community College would be $94,588 (Sandel & Sydow, 1997). Therefore, a decrease in student attrition will increase a college's operational funds.

Ivy Tech State College, a two-year community college, is one of seven public institutions that are providing higher education for the people of Indiana. Ivy Tech State College system is divided into 14 regions. Sixty percent of the operational budget for Ivy Tech State College is based on a full-time equivalency (FTE) formula generated by the State Legislature of Indiana. One FTE equals 15 college credits. Ivy Tech – Central Indiana, one of the 14 regions within the Ivy Tech system, has a student attrition rate of approximately 42% per year. Decrease in enrollment directly impacts the FTE count and therefore decreases both the funding from the state legislature and from direct tuition revenue. Previous studies have indicated that early identification and implementation of an intervention process is needed for student dropout prevention (Fenske, Geranios, Keller, & Moore, 1997; Gaustad, 1991; Tharp, 1998; Trusty & Dooley-Dickey, 1991). Additionally, some of these studies have shown the need for an instrument that could reliably and accurately identify potential dropouts.

Cousert (1999) conducted a study for two-semesters to examine the effect of a mentoring intervention program on retention at Ivy Tech State College – Central Indiana Region. The researcher utilized an experimental design. In the study, the students in developmental reading courses at Ivy Tech in the fall of 1997 were informed that they were part of a program called New Dimensions. It was stated that New Dimensions was focused on the student's success. Students were selected based on their Dropout Proneness Scores on Noel-Levitz's College Student Inventory (CSI) (Stratil, 1988a) as potential completors or dropouts. Potential dropouts scored from 5 to 9 on the CSI Dropout Proneness Score and potential completors scored from 1 to 4. Students selected as potential dropouts were divided randomly into two groups, one that received volunteer staff mentoring intervention and one that did not. The mentoring intervention was applied.

The mentoring intervention consisted of direct mentoring contact, a written student plan, personal system transition, review, and follow-up. The mentors were volunteer faculty or staff members of the college. The mentor established contact with the student, met with them to structure a written plan, and assisted in their personal transition into the college environment (See Appendixes A, B, C, & D).

Results of the study indicated that the intervention had a significant effect on one of the three variables, course grade point averages. There was not a significant effect on enrollment into the next semester or course completion. The study also recommended a number of actions. First, the New Dimensions mentoring intervention program should continue to be funded. Second, continued research should be conducted using a larger sample. Third, a longitudinal study should be conducted that would extend the enrollment

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period for research at least an additional three semesters past the baseline semester. Fourth, there should be examination and comparison of the dropout rate of groups by Dropout Proneness Scores. Fifth, there should be a study of the impact of mentoring on the attrition rate by Dropout Proneness Score groups (Cousert, 1999).

Significance of the Study

Cousert (1999) established the New Dimensions student retention mentoring intervention based on research by Collins in 1986 and Stratil, Schriner and Noel in 1993. He then evaluated the mentoring intervention for reenrollment into the next semester. The mentoring intervention was found to improve students' grade point average in the developmental reading class. Ivy Tech State College-Central Indiana Region has continued the program for the last three years based on the importance of grade improvement. This longitudinal study will examine the results of the mentoring intervention over a longer period of time and also try to determine at which Dropout Proneness Score levels the intervention should continue to be supported by the region with mentors. Therefore, the results of this study may reinforce the importance of the New Dimensions student mentoring intervention and may determine how the limited resource of mentors should be distributed for maximum results. Additionally, these results could be the basis for expansion of the New Dimensions program to the other campuses of Ivy Tech State College.

Statement of the Problem

Ivy Tech State College and in particular the Central Indiana Region has a limited budget; therefore, a limited amount of resources are available to accomplish its mission of providing higher education for the people of Indiana. Not only is enrollment a key factor in determining the region's budget, recruiting new students is more expensive than retaining them. Therefore, retention should be a primary strategic objective. The New Dimensions intervention program is one way that the retention challenge at the Ivy Tech-Central Indiana Region can be addressed. This program requires a large number of mentoring resources, the majority of which must come from a limited number of full-time faculty. The problem is twofold. First, there is a need to determine if the New Dimensions student mentoring intervention will contribute to a student's grade point average and/or retention over a longer period of time. Cousert (1999) designed the New Dimensions program to help improve grade point average and retention of college students. Additionally, during his research he used the CSI Dropout Proneness Score of 5 to 9 to identify the potential dropouts. Second, a study is necessary to determine by Dropout Proneness Score group which students will benefit from the limited number of mentoring resources. Cousert (1999) in his research did not differentiate between the impact of specific Dropout Proneness Scores, such as 5, 6, 7, 8, or 9, on grade point average or retention.

Purpose and Objectives of the Study

The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average of students at a two-year community college and determine the group of at-risk students, identified by Dropout Proneness Score, that will benefit the most from the mentoring intervention based on retention and grade point average.

The objectives of this study include:

1. Determining the effectiveness of the mentoring intervention on improving retention.
2. Determining the effectiveness of the mentoring intervention on improving grade point average.
3. Determining if there is a relationship between the New Dimensions mentoring intervention, Retention, and Dropout Proneness Score level.
4. Determining if there is a relationship between the New Dimensions mentoring intervention, grade point average, and Dropout Proneness Score level.

Research Questions

The following research questions guided this study:

1. Is there a difference in retention or grade point average over a three-year period of the identified at-risk students that receive the New Dimensions mentoring intervention versus the students that do not receive the intervention when

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considering the demographic variables of age, ethnicity, marital status, and gender?

2. When holding all significant extraneous independent variables constant, what systematic effect does Dropout Proneness Score have on retention or grade point average?
3. Which students grouped by Dropout Proneness Score predict the greatest retention or grade point average over five semesters?

Null Hypotheses

H_o1: The retention or grade point average of those students receiving the mentoring intervention will not be significantly different than of those students not receiving the program.

H_o2: Dropout Proneness Score has no systematic effect on retention or grade point average.

H_o3: Dropout Proneness Score cannot predict the student groups that will have the greatest retention or grade point average over five semesters.

Conceptual Framework

Ivy Tech State College's students are primarily adults with the average age of the current students being approximately 26 years old. Because of the age of the students, this study used adult learning theory. Although adult learning theory is still in development, it seems to best-fit Ivy Tech State College's students (Cousert, 1999).

The conceptual framework for this study focused on examining the effects of a mentoring intervention program while trying to determine how to assign limited mentoring resources to achieve a high return to school of at-risk student groups in a community college. Cousert developed his Adult Learner Mentoring Model for his intervention based on a mentoring model (Cousert, 1999).

This researcher used Cousert's model and modified it to develop a conceptual framework for this study. In level one of the model the students take the Assessment of Student for Successful Entry and Transfer (ASSET) test. These students' test results indicate that they possibly could be considered "at-risk" and are enrolled in the necessary developmental courses. In level two, the students in Reading I and II Classes were given the College Student Inventory and potential dropouts were identified by Dropout Proneness Scores of 5 or greater. In level three, mentors were matched with those chosen to have mentors. The students of the 1997 Fall semester were divided into two groups with one group receiving mentors and the other/control group did not. The 1998 Fall students were all assigned mentors. After level three, the researcher collected semester archival data for Fall 1998 through Spring 2001. In level four, the analysis phase, the effect of mentoring was evaluated by comparing retention and grade point averages of mentored students versus non-mentored. Then, mentored students of the Fall 1997 and Fall 1998, grouped by Dropout Proneness Scores, were evaluated based on their retention and grade point averages. (See Figure 1)

1. Conceptual Framework

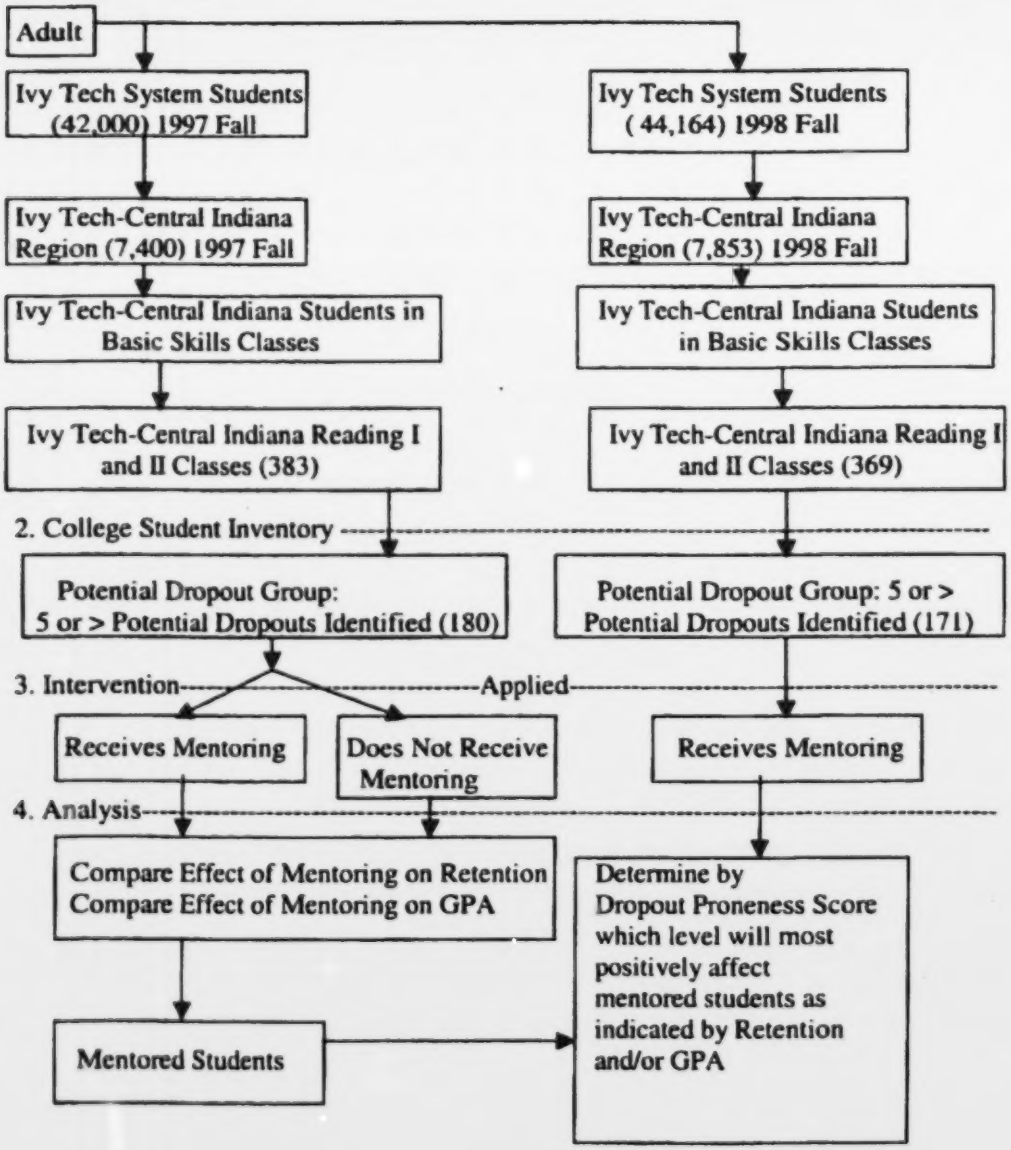
Adult
Ivy Tech System Students (42,000) 1997 Fall
Ivy Tech System Students (44,164) 1998 Fall
Ivy Tech-Central Indiana Region (7,400) 1997 Fall
Ivy Tech-Central Indiana Region (7,853) 1998 Fall
Ivy Tech-Central Indiana Students in Basic Skills Classes
Ivy Tech-Central Indiana Students in Basic Skills Classes
Ivy Tech-Central Indiana Reading I and II Classes (383)
Ivy Tech-Central Indiana Reading I and II Classes (369)
2. College Student Inventory
Potential Dropout Group: 5 or > Potential Dropouts Identified (180)
Potential Dropout Group: 5 or > Potential Dropouts Identified (171)
3. Intervention
Applied
Receives Mentoring
Does Not Receive Mentoring
Receives Mentoring
4. Analysis
Compare Effect of Mentoring on Retention
Compare Effect of Mentoring on GPA
Mentored Students
Determine by Dropout Proneness Score which level will most positively affect mentored students as indicated by Retention and/or GPA

Figure 1. Analysis Conceptual Framework

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Definitions of Terms

Cousert (1999) used the majority of these terms and definitions in his study. For the purposes of this study, the following terms are operationally defined:

Attainer. A student who satisfactorily achieves the educational goals he or she sets out to accomplish at a college or institution.

Commuter Colleges. Colleges and universities that do not have student residence halls.

Continuation. Enrollment in an immediately following semester, not to include the summer sessions.

Difference. Refers to a statistically significant difference in two or more sets of data.

Dropout Proneness Score. It is a composite of five College Student Inventory scales. The Dropout Proneness Score has a high degree of predictive validity and predicts enrollment status better than any other CSI scale or any combination of the other scales (Stratil, Schreiner, & Noel, 1993).

Dropouts. Students who do not remain enrolled during a semester, or who may withdraw formally, or who may discontinue attendance but do not formally withdraw.

Grade Point Average (GPA). Grade point average is the averaged value of the student's course grades for the number of program-level hours completed.

High-Risk. A theoretical concept based on an implicit assessment of the degree of negative risk associated with the educational experience (Jones & Watson, 1990).

Intervention. Any action that occurs to modify, correct, or change an action, event, or expectation.

Nonpersisters. Students who do not reenroll in an immediately following fall or spring semester.

Persisters. Students who do not drop out during a semester or who reenroll and complete in the following semester, not to include the summer sessions.

Retention. Students continuously enrolled until they have achieved their educational goals.

Stopout. A student who enrolls and completes a semester and then reenrolls but not on a continuous basis, but eventually achieves his or her goal.

Assumptions of the Study

This study was based on the following assumptions:

1. The student data in the study was the students that were enrolled at the Ivy Tech State College – Central Indiana campus in the 1997 or 1998 Fall semester.
2. The original instrument, the College Student Inventory, possessed adequate reliability and validity for identifying potential nonpersisters.
3. Student data and information was held in strict confidentiality.

Delimitations of the Study

The target population for this study was students enrolled in developmental reading courses in the 1997 and 1998 Fall semesters at a two-year community college in the state of Indiana. However, the sample did only include students at one campus within a statewide system of 23 campuses. Research was limited to students' data during their

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enrollment semester in the New Dimensions and the following semesters to conclude with the Spring 2001 semester.

Summary and Overview of the Chapters to Follow

This chapter has presented the following rationale for this study: higher education student retention is not a new problem, but has negatively impacted higher education the past two to three decades and will probably continue to be a problem during the early part of the 21st century (Zusman, 1999). Synthesis of information determined some important directions for the study. Decreasing student attrition improves a college's revenue and therefore increases its operational funds. Higher education institutions can and should impact student retention with interventions. There is a need to conduct a longitudinal study on Ivy Tech State College-Central Indiana Region's New Dimensions to evaluate its long-term value to the college.

Chapter two discusses the basic attrition and retention models, theories, dropout prediction instruments, and intervention strategies. Chapter three discusses the methodology and statistical analyses that were used to investigate the impact of the New Dimensions on the at-risk students at Ivy Tech State College-Central Indiana Region. Chapter four describes the results of the analysis. Chapter 5 explains the conclusion of the study and gives some recommendations for further research.

Chapter 2

REVIEW OF THE LITERATURE

The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average of students at a two-year community college and determine the group of at-risk students, identified by Dropout Proneness Score, that will benefit the most from the mentoring intervention based on retention and grade point average. In Chapter One it was indicated that student retention in higher education was a problem. To understand the nature of the problem as well as the lessons that have been learned from previous researchers, the researcher conducted a review of the literature. This literature review examined student retention and attrition theories and models; dropout prediction instruments; and intervention strategies, as well as literature pertaining to the College Student Inventory (Stratil, 1988a) and the intervention strategy of staff/faculty mentoring students.

The researcher built this study on the foundation stones of the New Dimensions program at Ivy Tech State College – Central Region. The New Dimensions program is described in detail later in this chapter in the Intervention Strategies section.
The program was based on the theory that mentoring could effectively facilitate student involvement in the social and academic activities of a college (Collins, 1986). With a staff/faculty mentoring intervention being the key element of this program, it is important to understand mentoring in the higher education context. Educational mentors are

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described by words such as guide, tutor, advisor, or counselor. Most mentors function in at least some, if not all, of these roles. Barbara Katz Rothman describes mentoring as a relationship where faculty members act as a parent and help students when they are vulnerable, insecure, and new to higher education (Rothman, 2001). Luna and Cullen (1995) said that mentoring includes initial contact, identification of problems or concerns, mentoring counseling, student action, and review.

Theories and Models of Attrition and Retention

A number of retention models are based on Durkheim's classic analysis of the social factors involved in suicide. Durkheim said that suicide was more likely when an individual did not receive enough support from friends and their values were different (Durkheim, 1961). In Elizabeth and Richard Liu's article, "An application of Tinto's Model at a commuter campus," they discuss Durkheim's conception of solidarity. They say that in the context of higher education, social solidarity is a state of collective social and intellectual integration. Therefore, Durkheim's hypothesis of social suicide is similar to the concept of involuntary student departure. They also imply that leaving high school and entering higher education causes students to sever ties with their past society. This severance causes a state of confusion and insecurity, which can lead to anomic suicide in the form of student departure (Liu, L. & Liu, R., 1999). In order to understand student departure in a social context, it is also necessary to see student departure as related to an individual's precollege environment and their post-college opportunities (Liu, L. & Liu, R., 1999).

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After reviewing literature in the higher education field, there are four primary models that most of the student retention/persistence studies are based. They are Spady's Model; Tinto's Student Integration Model; Pascarella's Model; and Bean and Metzner's Student Attrition Model (Henry & Smith, 1994).

Spady developed a conceptual model of college student retention based on some elements of Durkheim's theory of suicide (Spady, 1970). He compared student dropout behavior to suicide and said that similar group value systems and peer support influenced students' nonpersistent behavior. Spady was one of the first to formulate a theoretical model of the college dropout process. Studies that have used Spady's original model were limited.

Tinto's Student Integration Model was built on Spady's earlier model and concepts (Tinto, 1975). Tinto said that departing college is a longitudinal decision based on the acceptance, or rejection, of the academic and social systems of the institution. In Tinto's model, retention is looked at in terms of student's pre-entry attributes, goals and commitments, and academic and social integration. By 1993, he expanded his 1975 Student Integration Model to incorporate the importance of the institution's goals and commitments to students in determining student departure (Mason, 1998; Tinto, 1975, 1993). This model is one of the most widely cited in the literature as the basis for numerous attrition studies (Cabrera, Nora, & Castañeda, 1993; Liu, L. & Liu, R., 1999; Mason, 1998;Umoh & Eddy, 1994).

Tinto's model has been used in numerous studies by many researchers investigating how to predict which higher education students are not going to persist until graduation. Researchers have used Tinto's model to evaluate the significance of variables

such as age, gender, parent's education, grade point average (GPA), academic goal commitment, student academic integration, development course enrollment, institutional experience, highest expected degree, commuting distance, part or full-time work status, cost of education, race, and student-faculty relationship (Cabrera, Nora, & Castañeda, 1993; Haplin, 1990; Liu, L. & Liu, R., 1999; Pascarella & Terenzini, 1980; Sagy, 2000; Umoh & Eddy, 1994).

Pascarella developed a conceptual model based on Tinto's model that focused on the factors that a university could influence and control to increase faculty and student contact outside the classroom. He proposed and used five institutional integration scales that seem to predict freshman dropouts during their second semesters (Pascarella & Terenzini, 1980).

Researchers have used Pascarella's model to address academic achievement, student/faculty relationship, faculty accessibility, and academic environment (Cabrera, Nora, & Castañeda, 1993; Pascarella & Terenzini, 1980, Pascarella, 1984).

These first three models have the same basic construct, that the importance of student integration into the social and academic systems of the educational institution is key in determining retention. Additionally, each model was developed for traditional college students in residential settings (Mason, 1998).

Bean developed the Student Attrition Model. Later, he and Metzner modified the model to explain nontraditional student attrition. They tried to fill a void in theory-based research for two-year colleges. According to them, the one defining characteristic of the nontraditional student was their lack of social integration into the institution. Bean's and Metzner's concept evaluates a student's background, academic variables, environmental

variables, and social integration (Bean & Metzner, 1985). Their model indicates that departure decisions will be based on three sets of variables: academic, background, and environmental (Mason, 1998).

Bean and Metzner's model has been used in a number of studies (Henry & Smith, 1994; Kerka, 1989, Bean & Metzner, 1985). Researchers have used their model to evaluate the significance of variables such as grade point average, commitment as indicated by number of credit hours taken, and utility of the education to future employment (Cabrera, Nora, & Castañeda, 1993; Henry & Smith, 1994; Tharp, 1998).

There are two basic theories of attrition and retention. They are the expectancy theory (Vroom, 1964) and the needs theory (McClelland, Atkinson, Clark, & Lowell, 1953). Motivation is a driving element in each theory (Cousert, 1999). Expectancy theory examines student motivation in that the individual is driven by a conscious thought. In the needs theory, the student is driven by intrinsic factors, such as the need for achievement, need for affiliation, need for autonomy, and need for dominance.

Geiger and Cooper (1993) conducted a study using expectancy theory and needs theory in the prediction of student motivation and academic performance. Their study results indicated that perceived attractiveness of an outcome and the need for autonomy were the best predictors of college students grade point average. This implies that conscious motivation is a reliable indicator of performance.

In summary, the theories and models of retention and attrition do not explain nor predict why all students dropout of higher education, but they do identify some factors that impact students. The theories indicate that students make decisions to continue or dropout of college based on their acceptance into the culture of the institution. Models of

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retention and attrition also seem to show that student's precollege environment, attributes, and academic preparation are key elements of retention.

Dropout Prediction Instruments

The researcher reviewed a number of studies that evaluate dropout prediction instruments. Most dropout prevention programs were focused on at-risk student populations. These populations include African, Hispanic, older students, and other minority American groups. They also include socially and economically limited students.

One researcher reviewed five prediction instruments for reliability, validity, and length of time to complete (Cousert, 1999). The first was the Coping Resources Inventory for Stress (CRIS). It produces a global Coping Resources Effectiveness (CRE) score: 3 composite scores, 12 wellness-inhibiting scores, and 5 validity scores. Ryland, Riordan, and Brack (1994) used the CRIS and found the normative sample produced internal consistence coefficients for the twelve CRE scale scores between .84 and .97, and test-retest reliabilities ranged from $r = .76$ to .95. The results of the study, based on the discriminant functions, indicated that classification into persister or nonpersister groups was slightly greater than chance. However, this study was conducted when students had possibly already dropped out during the third week of the quarter and only in one institution where subjects were not selected randomly.

Krotseng (1991) used the second instrument, the Student Adaptation to College Questionnaire (SACQ), with approximately 2000 university students to predict persisters and nonpersisters. The SACQ instrument produced 31 variables that were moderately correlated with group membership. It correctly classified 85% of the Fall 1989 group as

persisters or nonperisters and 79% of the Fall 1990 group. It was suggested that two of the dominant variables were academic adjustment and social adjustment, which is consistent with Tinto's theory (Tinto, 1987). The lack of a random sample is one limitation of the study (nonrespondents may be different from respondents).

Allen and Nelson (1987) used the third instrument, the Freshman Experience Survey (FES), on 400 randomly selected white female residential freshmen in one public four-year college and one private two-year college. Variable sets included: background characteristics, academic and social integration, subsequent goal and institutional commitment, intention to persist or withdraw, and persistence/withdrawal behavior. In the pooled sample, the intention variable was the only one that directly affected persistence. The findings also indicated that student's institutional commitment is largely a function of their interaction with the social system. The samples only included female students, which is one limitation of the study.

The Student Questionnaire and Student Satisfactoriness Questionnaire (SANDS) was the fourth instrument reviewed. The Student Satisfaction Questionnaire and the Student Satisfactoriness Questionnaire are the two sub parts of the SANDS. The Student Satisfaction Questionnaire sub-scales include: influence of instructor, general skill competences, own performances, special school services, affective interaction with others, and conformance/attendance. The Student Satisfactoriness sub-scales include: visible skills, reasoning/maturity, general class performance, communication skills, mathematical skills, general program skills, and conformance/attendance. Kayser (1994) used the SANDS to study 96 students from six different programs in a post-secondary vocational-technical institute. Canonical correlation for sub-scales of the Satisfaction

Questionnaire showed Wilk's Lambda of .79, with a final Wilk's Lambda of .93. The Satisfactoriness Questionnaire revealed a canonical correlation of .87 (Time 1-2), .83 (Time 2-3), and .86 (Time 3-4), and a final Wilk's Lambda of .92 (Time 1-2), .92 (Time 2-3), and 1.00 (Time 3-4), which all were statistically significant. Correlations for the scales of the Satisfactoriness Questionnaire ranged from $r = .608$ to .776, significant at the $p < .01$ level. Correlations for the Student Satisfaction Questionnaire scales ranged from $r = .35$ to .77 and were statistically significant at $p < .01$ level.

The administration time for the Student Satisfaction Questionnaire was 3 to 20 minutes while the Satisfactoriness Questionnaire was 3 to 10 minutes. The instruments were administered in week six of the semester. The study limitations included a small sample size, a limited number of classes per program, and a lack of minorities in the sample. Additionally, the sample only included one rural setting school and had a lack of measurement of educational adjustment.

The fifth instrument, the College Student Inventory (CSI), was field-tested, as well as developed, on a sample of 4,915 students from 46 universities and colleges in the United States. It was developed with 19 major independent scales with an average homogeneity coefficient alpha of .80. Stratil (1988b) said the test-retest reliability coefficient is 0.70. He examined the content validity within a five-year period to maximize the discrimination between the CSI scales. To eliminate items that generated false positive responses, a defensiveness scale was adopted (Stratil, 1984). Stratil (1988b) stated that all of the CSI scales have a high degree of content validity.

CSI construct validity was determined by examining the differences between groups of students who were expected to differ in risk levels as dropouts or persisters.

Results indicated a significant difference in nine of the scale scores between the groups ($p < 0.001$). These Dropout Proneness scale scores demonstrated a high degree of predictive validity for Dropout Proneness Scores (Covariate $F = 803.69$, $df = 1$; Main Effect $F = 4299$, $df = 1$; and Explained $F = 457.14$, $df = 2$).

Two national studies have been conducted on the CSI. The first, a 1987 National Validity Study with 3,048 first-year college students produced a multiple r of 0.301 ($p < 0.001$) for eight predictors. With the criterion of enrollment status at the end of the first semester, a prediction equation yielded a correlation of 0.245 ($p < 0.001$).

The second study as indicated before was conducted with 46 universities and colleges where the CSI was administered to 4,915 students during a semester. Each institution provided information concerning each CSI participant's grade point average (GPA), credit hours attempted, credit hours completed, semesters of enrollment, current enrollment status, and reason for leaving college if not enrolled the next year (Stratil, Schreiner, & Noel, 1993). In this study, predictive reliability of the CSI was evaluated by two criteria: college GPA at the end of the first year of enrollment and enrollment status at the beginning of the second year. The CSI scales were correlated with students' first-year-college GPA yielding a coefficient of $r = 0.61$. Discriminant analyses using enrollment status as the dependent variable were computed. When all the CSI scale scores were used together as the predictor, 71.96% of the cases were correctly classified as reenrollment or nonpersisters. But the combined scales tended to over-predict reenrollment. The Dropout Proneness Scores seemed more likely to predict enrollment than all the scales combined. The analysis showed that 58.84% of the students were correctly classified in reference to their reenrollment status. Using the Dropout Proneness

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Scores as the only predictor, the false negative rate dropped significantly. When high school GPA and Dropout Proneness scale score were compared as predictors, the high school GPA could accurately classify 51.96% as to enrollment status with a comparable false negative rate of approximately 45%. Therefore, the CSI Dropout Proneness Scores appear to predict enrollment status better than GPA (Stratil, Schreiner & Noel, 1993).

Stratil (2001) conducted a 1999 national validity study to evaluate the ability of the College Student Inventory to predict persistence in two-year and four-year institutions. He performed an ANOVA for each of the CSI's scales by comparing persisters and leavers. The results of the study supported the predictive and construct validity of the CSI. One specific result was the Dropout Proneness Score was significant for two-year, $F = 15.16$, $p < .01$ and four-year colleges, $F = 84.36$, $p < .01$. The results indicated that persisters had lower Dropout Proneness Scores than those students classified as leavers. Stratil's research again indicates that Dropout Proneness Score is a valid predictor of retention.

In summary, the five instruments were designed to predict potential dropouts and help improve student retention. Identification of potential dropouts enables student services at each institution to counsel and assist students with challenges and in that way may encourage them to persist. Additionally, this information can assist in the development of an individualized student retention management plan. A number of researchers recommend that intervention strategies need to be based on the analysis of student retention needs at that local campus (Rose, 1998) and early intervention is best (Martin, 1999). It is imperative to adopt an instrument that possesses high reliability, has

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a prediction score of potential dropouts, and can be administered at the beginning of a student's entry into the system.

Intervention Strategies

Intervention strategies attempt to influence college students to stay in an educational institution until their goals are met. Ernest T. Pascarella and Patrick T. Terenzini stated, "It may well be the case, however, that a significant portion of student attrition might be prevented through timely and carefully planned institutional interventions. Such interventions will be most effective if those students with high probability of dropping out can be accurately identified" (Pascarella & Terenzini, 1980, p. 61). Numerous intervention strategies have been tried at different campuses and most try to assist the student's transition process from high school to college.

Developmental Classes

Numerous public higher learning institutions have open access and therefore, have students that need some preparatory course work before they can be successful in program level courses. To meet this need, some institutions have been teaching developmental classes in reading, writing, and math as one-part of an overall intervention strategy to bridge the gap. The good side is that these courses do help students, but the down side is they do not count toward graduation requirements nor their GPA and extend the length of a student's time to graduate (Holton, 1998; Grimes & David, 1999).

Researchers have evaluated the relationship between remedial education and student attrition as an area of concern. Some researchers found that the need for remedial education has a significant relationship with student retention, but many other factors also

influence student retention (Hoyte, 1999, Boylan & Bonham, 1992). Hoyte found that his research supported most other studies showing that academic performance, minority status, work, and other outside commitments significantly relate to student retention. His study also found that a student's first-term academic performance had the strongest relationship with student retention of all the variables considered (Hoyte, 1999).

Freshman Experience

One intervention strategy that some universities have used is called a freshman experience. Freshman students are placed in small groups and encouraged to participate in campus activities. Jerry Supple, president of Southwest Texas State University, said that the real reason for students leaving is because we have failed to significantly engage them in the campus community. Southwest Texas started a Hispanic freshman leadership conference in 1995 because Hispanics were dropping out in greater proportions than other first-year students. Their program took Hispanic upperclassmen and faculty members and used them to help new students adjust to the campus environment. Officials say the program increased Hispanic freshman-to-sophomore retention rate from 58% in 1995 to 68% in 1997 (Reisberg, 1999).

Mr. Supple also said that they are not trying to keep students that should not be there by lowering academic standards, but they are talking about keeping students. He said, "I feel very strongly that freshman retention is one of the truly substantial measurements of institutional quality" (Reisberg, 1999, p A54).

Cluster Courses and Environment

Similarly, Minnesota State University, in Mankato, Minnesota, designed cluster courses for students involved in an optional program called the First-Year-Experience.

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About one out of three of the 2,100 freshman students participate in the program, which has an "enhanced living and learning environment." The students, their mentors (upperclassmen, graduate students, and a few faculty members) live in a 600-bed dormitory reserved just for the program. The dormitory has a classroom where participants take composition and the one-credit seminar on topics such as critical thinking and research methods. Richard R. Rush, president of the university, says that the freshman-to-sophomore retention rate has increased from 69% in 1995 to 79% in 1998 (Reisberg, 1999).

Centralized Office/Person

A study of 163 community colleges across the United States compiled strategies used to recruit, retain, and graduate minority students enrolled in vocational programs. The research indicated that student success was the highest when a centralized office or person that could give retention a visible sense of importance coordinated the institution's efforts. According to the study, the strategies that were most often used by institutions to overcome retention problems were: the creation of positions dedicated to handling retention activities on campus; the recognition of the need for additional funding sources; the establishment of mentor programs for minority students; the reorganization of faculty/staff duties and responsibilities to assist retention activities; the development of a reporting system for identification and tracking so that institutions can have accurate data; and the development of faculty/staff training to better understand minority populations (Parker, 1997). Parker says that retention rates can be improved for less investment of time, effort, and money than most administrators fear.

Collaborative Learning

The National Center on Postsecondary Teaching, Learning, and Assessment initiated a study to gain empirical evidence to see if collaborative learning programs enhance student achievement by focusing on academic and social experiences of beginning college students. Three programs were studied: the Freshman Interest Group program at the University of Washington, the Coordinated Studies Program at Seattle Central Community College, and the learning community programs at LaGuardia Community College in New York City. At the time of this article's publication, studies had been completed at the University of Washington and Seattle Community College. Tinto and Goodsell-Love (1993) describe the two programs and then give some concluding observations.

The Freshman Interest Group (FIG) program at the University of Washington enrolls groups of approximately twenty students in a common theme cluster of courses. Each FIG member attends a one-credit group meeting led by an upperclass facilitator/advisor. The group provides each student the support of a community of peers to help them negotiate their transition to college. The results of the study indicate that even in a freshman class that had a rate of second-year persistence of about 95.8%, the Freshman Interest Group students persisted at 99.2%. Also, the FIG students had a grade point average of 3.14 while the others had one of 2.98. Participation in the Freshman Interest Group proved, in multivariate discriminate and regression analyses to be a significant independent predictor of performance and persistence (Tinto & Goodsell-Love, 1993).

The Coordinated Studies Program (CSP) at Seattle Central Community College has students enroll in a thematic cluster of courses that combine content and faculty from several different disciplines. Instructors team-teach using various forms of small and large group activities. In a class called, "The Televised Mind," three instructors and approximately sixty to seventy-five students meet in a large classroom for fifteen hours a week and at least once a week the class breaks into three smaller groups for a faculty led discussion. The student's comfort level for active involvement increased through a high level of social, emotional, and academic peer support from the classroom activities. Study results indicate that the CSP students persisted in the following spring and fall quarters at a significantly higher rate than the students that took regular classes (83.8 versus 80.9% and 66.7 versus 52.0%, respectively).

Tinto and Goodsell-Love concluded that the results of these two previous studies support the basic tenets of collaborative learning. First, learning communities facilitated students in meeting two of their basic needs, social and academic, without sacrificing one to address the other. Second, students are strongly influenced when they participate in a setting where sources of learning come from a variety of perspectives beyond that offered by one faculty member. Thirdly, though they did not obtain information about learning as measured by tests, they know that student academic performance and persistence was greater in collaborative learning settings than in more traditional learning settings, and that these were independent of student attributes. Finally, their findings suggest that it is possible to promote student involvement and achievement in settings where such involvement is not easily attained (Tinto & Goodsell-Love, 1993).

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Combination Approach

Ohio State University used a consulting company named Noel-Levitz that specializes in recruitment and retention to emplace a "predictive modeling" system to focus attention on freshman that were most likely to leave. Ohio State became a pilot institution in 1998 for Noel-Levitz's new retention service. Noel-Levitz analyzed admission applications, high-school transcripts, and surveys of freshman who enrolled at Ohio State in 1996 and 1997 and noted common characteristics of students that returned and the ones that did not. The company assigned "at-risk scores" to freshman that enrolled in 1998 and 1999 using the previous collected data (Reisberg, 1999).

Ohio State established a "personal contact program" for at-risk students based on the Noel-Levitz analysis. The program included the financial-aid office contacting freshman after a few weeks that said they planned to work long hours and explore some other possibilities for them to pay for college. Staff from the student-affairs office called freshman that had applied late and tried to find out if they felt a sense of belonging to the campus. Academic advisors offered tutoring and guidance services to students that ranked low in their high-school classes or had taken only a few mathematics classes. According to James J. Mager, assistant vice-president for enrollment services at Ohio State, the strategy so far has only produced marginal results. The personal-contact program was applied to 300 out of 1,200 freshmen that were identified as at-risk in 1998. The students in the program returned at 75%, while the rest returned at 72%. Also, 91% of the students Noel-Levitz identified as having no or low risk factors returned in the next fall (Reisberg, 1999).

Ohio State University used a combination approach to retention in its personal-contact program. The university's program had elements of contact with the student from staff to assist in administrative matters and advisors/mentors to advise and assist in academic as well as transitional challenges.

Mentoring

Mentoring is another strategy that is used in higher education to enhance student retention. Lee (1999) researched mentoring at North Carolina State University. This institution has a University Transition Program (UTP) that has evolved from Affirmative Action initiatives and has been part of their enrollment management program for more than 10 years. The program is primarily for African Americans and also some Native Americans. UTP's goal is to facilitate the transition of academically under prepared students into the university environment to increase each student's chance of academic success. A qualitative assessment was conducted to discover student perspectives on their transition to the university and their perspectives on the value of having a faculty mentor. The researcher found that faculty mentoring could assist students in adjusting to the university's culture and prepare them for the prevailing culture of their chosen profession (Lee, 1999).

In 1993, Coffeyville Community College in Kansas instituted the SELECT Advisor programs in an effort to improve student retention and advisement. The advisors/mentors attended a summer workshop, helped with student orientations, taught one section of college orientation, and mentored 10 at-risk students. A September report said the 1993 freshman in the SELECT program had a 73% retention rate, compared to a

70% retention rate for students enrolled in orientation classes, and a 41% retention rate for students not enrolled in orientation classes (Clark and others, 1995).

The last mentoring intervention reviewed was the New Dimensions at Ivy Tech State College – Central Region, located in Indianapolis, Indiana. Cousert (1999) developed the New Dimensions program based on theory and research. He conducted a study to determine if the New Dimensions student mentoring intervention program improved retention and GPA.

First, Cousert (1999) selected an instrument, Noel-Levitz's College Student Inventory (Stratil, 1988a), which was considered reliable and valid based on previous studies as described in the Dropout Prediction Instruments section of this chapter (Stratil, 1984; 1988b; 2001; Stratil, Schreiner & Noel, 1993). The CSI was a 194 question survey covering topics such as parent's educational background, student's high school performance, student's initial impression of the educational institution, student's educational concerns, and student's social concerns. The CSI takes student input and produces nineteen scale scores. Five of these scales are combined to produce a Dropout Proneness Score. The Dropout Proneness Score was determined to be a good indicator of potential student retention (Stratil, Schreiner & Noel, 1993). The Dropout Proneness Score ranges from one to nine. It is expressed on a stanine scale with one (1) being very low, five (5) being average, and nine (9) being very high. A Dropout Proneness Score of 1 indicates that the prediction of student dropout proneness is very low while a score of 9 indicates a very high dropout potential. In Cousert's (1999) study, he used the scores of 5 through 9 to identify students that were at-risk and needed a mentoring intervention.

Second, Cousert (1999) used a true experimental design for his study. Students in developmental Reading I and II at Ivy Tech State College – Central Region were administered the CSI in the first weeks of the 1997 Fall semester. Then the students with a Dropout Proneness Score of 5 through 9 were designated potential dropouts. Cousert next divided randomly the designated potential dropout students into two groups, one that received the mentoring intervention and one that did not. The New Dimensions mentoring intervention included direct mentoring contact, a written student action plan, personal system transitioning, review, and follow-up (See Appendixes A, C, & D). The mentoring pool was comprised of mainly faculty with some staff (Cousert, 1999).

Cousert (1999) then collected data on the students for the Fall semester of 1997 and Spring semester of 1998. With this data, he next conducted his analysis using Chi-Square tests. The results of his study indicated that the mentoring intervention had no effect on the completion of the reading courses or enrollment (retention) in the Spring of 1998 semester. The mentoring intervention did have a significant effect on the students' grades for the Fall 1997 semester. Due to Cousert's (1999) research, the New Dimensions program has been funded through the present.

In summary, a number of different strategies have been tried and most have been successful to some degree. All seem to have one common thread of showing concern for the individual student and encouraging them to become part of the campus activities. This encouragement is provided through programs that have elements of the freshman experience, collaborative learning, cluster classes, a personal contact plan, and/or faculty mentoring. Mentoring seems to be an extremely important element of a successful retention program.

Summary of the Review of the Literature

Models of retention and attrition were reviewed to understand the causes of students dropping out of higher education. The literature indicated that identifying potential dropouts early would assist the institutions in improving their student service systems and implementing strategies that would enhance student retention. The researcher also reviewed some potential student dropout instruments. The College Student Inventory was found to be reliable. One of the strategies that some colleges and universities have used successfully is mentoring. This strategy has been effective particularly when it has enhanced the relationship between the faculty and the students. Although there is limited empirical data to show mentoring improves retention, there are numerous studies that indicate mentoring contributes to retention (Brawer, 1996; Campbell-Peralta, 1995; Credle, 1991; Lee, 1999; Parker, 1997). Also, the studies that have produced the empirical data have usually been limited in length of study duration. At least one experimentally designed mentoring study does indicate improvement of grades (Cousert, 1999). Longitudinal studies that seek to further refine discrimination of Dropout Proneness Scores need to be conducted.

Chapter 3

METHODOLOGY

The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average of students at a two-year community college and determine the group of at-risk students, identified by Dropout Proneness Score, that will benefit the most from the mentoring intervention based on retention and grade point average.

Research Questions

The following research questions guided this study:

1. Is there a difference in retention or grade point average over a three-year period of the identified at-risk students that receive the New Dimensions mentoring intervention versus the students that do not receive the intervention when considering the demographic variables of age, ethnicity, marital status, and gender?
2. When holding all significant extraneous independent variables constant, what systematic effect does Dropout Proneness Score have on retention or grade point average?
3. Which students grouped by Dropout Proneness Score predict the greatest retention or grade point average over five semesters?

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Null Hypotheses

H_o1: The retention or grade point average of those students receiving the mentoring intervention will not be significantly different than of those students not receiving the program.

H_o2: Dropout Proneness Score has no systematic effect on retention or grade point average.

H_o3: Dropout Proneness Score cannot predict the student groups that will have the greatest retention or grade point average over five semesters.

Rationale for Research Design

The researcher took three of Cousert's (1999) study recommendations and examined them in a longitudinal study using archival data. A longitudinal study covers an extended period of time and allows the researcher to gain insights that may not have been evident during a one or two semester time frame.

First, the rationale for doing a longitudinal study was that Ivy Tech State College students need to be studied over a longer period of time to be able to gain a more accurate account of their retention/persistence (Tinto, 1993). This was necessary because students at a community college usually do not graduate within two years but may stopout for a semester. Additionally, they may not take a full credit hour load in any one semester and thereby increase their time to attain their goal.

Second, the need for a longitudinal study was identified by another researcher's study (Cousert, 1999). He established the New Dimensions mentoring intervention

program based on his research in student retention at Ivy Tech State College – Central Region. His experimental design research indicated that the student mentoring intervention significantly improved grades. Additionally, his research only compared mentored at-risk students with Dropout Proneness Scores of 5 through 9 to non-mentored at-risk students with scores of 5 through 9. Although Cousert's (1999) research indicated the mentoring intervention made a significant difference, it did not differentiate at which level or levels of Dropout Proneness Score an institution should apply their limited mentoring resources for the optimum results. Where Cousert (1999) collected data for only two semesters, this researcher used data starting with Fall 1997 and ending with the Spring 2001 semester. This study was designed to gain further insights and predict at what Dropout Proneness Score levels an institution should focus their limited mentoring resources in the context of the New Dimensions program.

Identification of Variables

Dependent Variables

The dependent variables were identified by literature in previous research. The dependent variables in this study included:

1. Grade Point Average: Grade point average is the averaged value of the student's course grades for the number of program-level hours completed. Course Grades were based on a four-point scale with 4 = "A", 3 = "B", 2 = "C", 1 = "D", and 0 = "F" grade.

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2. Retention: Continuous ratio variable of 0 to 7 representing each semester that each student completed and received a grade or grades after the mentoring intervention semester.

Independent Variables

Independent variables were important to the research perspective and included the treatment and the characteristics of the subjects such as age and gender as Lauer and Asher (1988) had indicated in a previous study. Although one category reported in the literature under at-risk students was first-generation "attending college," it was determined that it would not be part of this study. This information is not available in the current database. The independent variables in this study included:

1. Mentoring Intervention: Mentoring was the intervention strategy used in the study. The purpose of the Mentoring Intervention was to improve retention and grade point averages. Students not receiving the Mentoring Intervention were assigned a 1 and those receiving it will be assigned a 2.
2. Age: Age groups were compared. The groups were 15-19, 20-29, 30-39, 40+, and Blank. Students identified their actual ages.
3. Gender: Male and female subjects participated in this study. The gender variable was identified as 1 = Female, and 2 = Male.
4. Marital Status was identified as a 1 = single/divorced and 2 = married.
5. Ethnicity was identified as 1 = Minority and 2 = White (Caucasian).

6. Dropout Proneness Score: It is a composite of five College Student Inventory scales and has a value of 1 (low) to 5 (average) to 9 (high) potential to dropout.

Procedure

Part One

In part one of the study, the at-risk mentored and non-mentored students of the Fall 1997 semester were compared using one of the demographic variables (age, ethnicity, marital status, or gender). This was accomplished using a Factorial ANOVA to determine if the mentoring intervention significantly improved retention over seven semesters. Next the researcher substituted another demographic variable and ran Factorial ANOVAs until all demographic variables had been analyzed with the mentoring/not-mentoring variable.

Then GPA became the dependent variable in a series of Factorial ANOVAs with the same students, independent variables, and time frame to see if the mentoring intervention significantly improved GPA over seven semesters for all the independent variables.

Part Two

Tabachnick and Fidel (1989) say that randomly selecting groups in no way assures equality among groups. It only guarantees that there are no systematic differences between groups. However, they indicate that random individual differences among subjects can create differences that are not associated with treatment. They suggest that one can diminish the individual differences by using an ANCOVA to provide the necessary adjustment for covariates.

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Therefore, in part two of the study, the researcher stripped out the effects of significant independent variables, identified in part one, on retention using a one-way ANCOVA. Next the researcher used the same procedure to strip out the effects on the dependent variable of GPA. Controlling for interaction between the dependent and independent variables was only necessary for the independent variables that were found to be significantly different in part one between the at-risk mentored and not mentored students.

Part Three

In part three the researcher used linear regression to predict which Dropout Proneness Scores indicated the greatest retention. Then the researcher used linear regression to predict which Dropout Proneness Scores indicated the greatest GPA.

Due to the fact that a small number of students were mentored in 1997 the researcher combined the Fall mentored students of 1997 (88) and 1998 (171). Tabachnick and Fidell (1989) say a sample should have more than 100 cases in linear regression to insure the power of the test. To be able to combine these two populations, one must first check to see if they are statistically different. This was accomplished by using a *t* test to compare Dropout Proneness Scores of the mentored students of the Fall 1997 and the Fall 1998. Each demographic variable of one Fall was compared to the other Fall sample for supporting insights of similarity.

The two populations were found not to be significantly different. Therefore the researcher used linear regression to check for the relationship of Dropout Proneness Score to retention and for the relationship of Dropout Proneness Score to GPA. Since the two populations were not significantly different, additional analyses were not conducted.

Statistical Analysis

The researcher used statistical tests to provide the basis for the statistical analysis. The statistical analysis was divided into three parts. Each part had a number of statistical tests and variables. These tests with variables are listed for clarification (see Table 1).

Table 1

Statistical Tests

Part	Test
One	
1. Retention – Age and (Mentored/Not-Mentored)	Factorial ANOVA
2. GPA – Age and (Mentored/Not-Mentored)	Factorial ANOVA
3. Retention – Ethnicity and (Mentored/Not-Mentored)	Factorial ANOVA
4. GPA – Ethnicity and (Mentored/Not-Mentored)	Factorial ANOVA
5. Retention – Marital Status and (Mentored/Not-Mentored)	Factorial ANOVA
6. GPA – Marital Status and (Mentored/Not-Mentored)	Factorial ANOVA
7. Retention – Gender and (Mentored/Not-Mentored)	Factorial ANOVA
8. GPA – Gender and (Mentored/Not-Mentored)	Factorial ANOVA
Two	
1. Retention for Covariates of the significant Independent Variables	ANCOVA
2. GPA for Covariates of the significant Independent Variables	ANCOVA
Three	
1. Task: To combine two samples to make a larger sample	
a. 1997 Mentored versus 1998 Mentored	*t* test
b. Age	*t* test
c. Ethnicity	*t* test
d. Marital Status	*t* test
e. Gender	*t* test
2. Retention prediction with Dropout Proneness Score	Linear Regression
3. GPA prediction with Dropout Proneness Score	Linear Regression

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Sample

Participants were at-risk students of the Fall 1997 and Fall 1998 at Ivy Tech State College – Central Region. These students were required by the college to take a developmental reading course, due to their Assessment of Student for Successful Entry and Transfer (ASSET) scores. During the reading course at the first of the semester they were administered the College Student Inventory (CSI). The College Student Inventory produced a Dropout Proneness Score for each student. Based on guidance from Noel-Levitz, Cousert (1999) identified at-risk students as individuals that had a 5 through 9 on their Dropout Proneness Score. He randomly divided the Fall 1997 at-risk student group (175) into two groups, one of 80 students that received the mentoring intervention and one group of 95 that did not receive the intervention. The New Dimensions program has continued to receive funding based on his research. Additionally, after the Fall 1997 semester all at-risk students received the mentoring intervention.

Due to the small number of at-risk students that were mentored in the Fall 1997, the researcher used a composite sample of a combination of the Fall 1997 and Fall 1998 mentored students in the linear regression prediction of retention and GPA. According to Tabachnick and Fidell (1989), a sample of 100 or more cases is suggested when using linear regression, otherwise the power of the test may be unacceptably low. The composite sample consisted of 88 (Fall 1997) and 171 (Fall 1998) mentored students. This composite sample should have provided indications of which students by levels of Dropout Proneness Scores would benefit the most from the use of an institution's limited

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mentoring resources. Also, degree and non-degree seeking students were included in the sample, but were not identified in the study.

Data Collection Process

The data was archival in nature and was stored in Central Indiana Region's computers. The data was specifically stored in the Student Information System and in the Director of Student Affairs' Office of the Central Indiana Region. The researcher collected data starting with the Fall 1997 semester and concluded with Spring 2001. Data collection for the Fall 1998 mentored students extended from their initial semester through the Spring 2001.

When the researcher addressed the third research question of the prediction of retention and GPA using linear regression, the researcher used a composite sample of the Fall 1997 and 1998 mentored students. The Fall 1997 students had two more semesters of data available than the Fall 1998. Collection of data focused on the independent variables of mentored, age, ethnicity, marital status, and gender as well as the dependent variables of retention and GPA.

Chapter 4

RESULTS

This chapter is organized to show the purpose of the study, student demographics, the research questions, hypotheses, and the results of the statistical tests. The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average (GPA) of students at a two-year community college and determine the group of at-risk students, identified by Dropout Proneness Score, that benefit the most from the mentoring intervention based on retention and grade point average. The at-risk students at Ivy Tech State College-Central Indiana are an important part of the student body. Retaining these students is a key part of the institution's responsibility. The New Dimensions intervention plan (See Appendix A) has been a major element in this retention effort. The central element of the program has been a student mentoring intervention (See Appendix C). After reviewing retention literature, the researcher wanted to learn more about New Dimensions. The researcher developed the following questions about the New Dimensions program that are addressed in this study's analysis:

1. Is there a difference in retention or grade point average over a three-year period of the identified at-risk students that receive the New Dimensions mentoring intervention versus the students that do not receive the intervention when considering the demographic variables of age, ethnicity, marital status, and gender?

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2. When holding all significant extraneous independent variables constant, what systematic effect does Dropout Proneness Score have on retention or grade point average?
3. Which students grouped by Dropout Proneness Score predict the greatest retention or grade point average over five semesters?

A total of 351 student records of a community college were used in this analysis. The Fall 1997 student records were used in the analysis of the researcher's Question One and Question Two. The combined mentored Fall 1997 and Fall 1998 at-risk student records were used in the analysis of Question Three.

The Fall 1997 student records included 180 at-risk students based on their Dropout Proneness Scores of the College Student Inventory (Stratil, 1988a) falling in the range of 5 to 9. The students that had Dropout Proneness Scores of 5 to 9 were divided into two groups randomly and one group was selected to receive the mentoring intervention. This study included 88 mentored students and 92 students that did not receive the intervention. The other 1997 demographics included 99 females and 79 males; 62 in the 15 to 19 age group, 87 in 20 to 29 age group, 26 in the 30 to 39 age group, and 5 in the 40+ age group; 101 minorities and 73 Caucasians; and 155 single/divorced and 14 married students. All demographic data was based on information the students provided by answering questions of the College Student Inventory.

The Fall 1998 at-risk student records included 171 students that received on the College Student Inventory a Dropout Proneness Scores of 5 to 9. All at-risk students in the Fall 1998 semester were mentored. The Fall 1998 student demographics were 110 females and 61 males: 91 in the 15 to 19 age group, 55 in the 20 to 29 age group, 15 in

the 30 to 39 age group, and 10 in the 40+ age group; 86 minorities and 83 Caucasians; and 146 single/divorced and 9 married students.

The combined Fall 1997 and Fall 1998 at-risk mentored student records included 259 students that received Dropout Proneness Scores of 5 to 9 on the College Student Inventory. The combined Fall 1997 and 1998 student demographics were 159 females and 99 males: 127 in the 15 to 19 age group, 93 in 20 to 29 age group, 26 in the 30 to 39 age group, and 13 in the 40+ age group; 129 minorities and 123 Caucasians; and 225 single/divorced and 16 married students. Some of the combined Fall 1997 and Fall 1998 at risk-students were attainers and that is because they did reach their educational goals. Of the 259 students, 10 attainers graduated with associate degrees and 3 attainers received technical certificates. Of the 10 that received associate degrees 7 had the mentoring intervention, as did 2 out of the 3 that received technical certificates.

Analysis Results

Question One

Is there a difference in retention or grade point average over a three-year period of the identified at-risk students that receive the New Dimensions mentoring intervention versus the students that do not receive the intervention when considering the demographic variables of age, ethnicity, marital status, and gender?

H_o1: The retention or grade point average of those students receiving the mentoring intervention will not be significantly different than of those students not receiving the program.

The researcher conducted eight Factorial Analyses of Variances (ANOVAs) to determine if there was a significant difference in the mentored and not mentored students over a three-year period based on retention and grade point average (GPA) when considering the demographic variables of age, ethnicity, marital status, and gender.

The first factorial ANOVA was conducted with mentoring and gender as the independent variables and GPA as the dependent variable. There was a significant interaction between mentoring and gender on GPA, $F(1, 174) = 4.26$, $p < .05$ ($\eta^2 = .02$) (see Tables 2 & 3).

Table 2

ANOVA Summary for Interaction

Source	SS	df	MS	F
Mentored	2.80	1	2.80	1.64
Gender	.41	1	.41	.24
Mentored x Gender	7.29	1	7.29	4.26*
Error (Within)	297.61	174	1.71	
Total	547.36	178		

*$p < .05$

The main effects of mentoring and gender were not found to be significant with the dependent variable of grade point average.

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Table 3

Descriptive Data for Significant Interaction

	Mentored	Not Mentored
Male	M = 1.44	M = .78
	SD = 1.43	SD = 1.07
Female	M = 1.13	M = 1.29
	SD = 1.35	SD = 1.35

A second factorial ANOVA was conducted with mentoring and age group as the independent variables and GPA as the dependent variable. The main effect of age group was found to be significant, $F(3, 172) = 3.59$, $p < .05$ ($\eta^2 = .06$) (see Table 4). Age group has four different levels and therefore suggested a post-hoc test would provide useful information.

Table 4

ANOVA Summary for GPA

Source	SS	df	MS	F
Mentored	0.07	1	0.07	0.04
Age Group	17.92	3	5.97	3.59*
Mentored x Age Group	3.99	3	1.33	0.80
Error (Within)	286.18	172	1.66	
Total	551.36	180		

*$p < .05$

A post-hoc test using Tukey-Kramer MCP was conducted and found students in the 30-39 age group's GPA was significantly higher than the 20-29 age group's GPA and the 15-19 age group's GPA was higher than the 20-29 age group's GPA (see Table 5). The 40+ age group's GPA did not differ significantly from the other age group's GPA.

Table 5

Descriptive Data for Significant GPA

	15-19 Years	20-29 Years	30-39 Years	40+ Years
Mentored	M = 1.58	M = .84	M = 1.92	M = .83
	SD = 1.30	SD = 1.36	SD = 1.33	SD = 1.44
Not Mentored	M = 1.35	M = .84	M = 1.14	M = 1.56
	SD = 1.14	SD = 1.28	SD = 1.22	SD = 2.21

The interaction of mentoring and age group and the main effect of mentoring were not found to be significant.

A third factorial ANOVA was conducted with mentoring and age group as the independent variables and retention as the dependent variable. The main effect of age group was found to be significant, $F(3, 172) = 6.76$, $p < .01$ ($\eta^2 = .10$) (see Table 6). Age group has four different levels and therefore suggested a post-hoc test would provide useful information.

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Table 6

ANOVA Summary for Retention

Source	SS	df	MS	F
Mentored	8.37	1	8.37	.14
Age Group	77.04	3	25.68	6.75*
Mentored x Age Group	13.96	3	4.65	1.22
Error (Within)	653.83	172	3.80	
Total	1309.00	180		

*$p < .01$

A post-hoc test using Tukey-Kramer MCP was conducted. The 15-19 and 30-39 age groups' retention was significantly higher than the 20-29 age group's retention with the 30-39 age group having a greater retention than the 15-19 age group (see Table 7). The 40+ age group's retention did not significantly differ from any of the other age groups' retention.

Table 7

Descriptive Data for Significant Retention

	15-19 Years	20-29 Years	30-39 Years	40+ Years
Mentored	M = 2.14	M = 1.00	M = 3.18	M = .33
	SD = 1.99	SD = 1.38	SD = 2.40	SD = .58
Not Mentored	M = 2.15	M = 1.31	M = 2.73	M = 3.50
	SD = 2.01	SD = 1.70	SD = 2.96	SD = 4.95

The interaction of mentoring and age group and the main effect of mentoring were not found to be significant.

A fourth factorial ANOVA was conducted with mentoring and ethnicity as the independent variables and retention as the dependent variable. The interaction of mentoring and ethnicity and the main effects of mentoring and ethnicity were not found to be significant.

A fifth factorial ANOVA was conducted with mentoring and ethnicity as the independent variables and GPA as the dependent variable. The interaction of mentoring and ethnicity and the main effects of mentoring and ethnicity were not found to be significant.

A sixth factorial ANOVA was conducted with mentoring and marital status as the independent variables and retention as the dependent variable. The interaction of mentoring and marital status and the main effects of mentoring and marital status were not found to be significant.

A seventh factorial ANOVA was conducted with mentoring and marital status as the independent variables and GPA as the dependent variable. The interaction of mentoring and marital status and the main effects of mentoring and marital status were not found to be significant.

An eighth factorial ANOVA was conducted with mentoring and gender as the independent variables and GPA as the dependent variable. The interaction of mentoring and gender and the main effects of mentoring and gender were not found to be significant.

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In summary the results of the analysis to Question One indicated significant effects of the interaction of mentoring and gender with the dependent variable of GPA, the main effect of age group with a dependent variable of retention, and the main effect of age group with a dependent variable of GPA. Because of these results the researcher next focused on determining if Dropout Proneness Score had a systematic effect on the dependent variables of retention and grade point average as described in Question Two.

Question Two

When holding all significant extraneous independent variables constant, what systematic effect does Dropout Proneness Score have on retention or grade point average?

Ho2: Dropout Proneness Score has no systematic effect on retention or grade point average.

In Question One, the researcher found in the eight factorial ANOVAs one significant interaction and two main effects. In order to gain more information about the three significant effects of the interaction of mentoring treatment and gender with the dependent variable of GPA, the main effect of age group with a dependent variable of retention, and the main effect of age group with a dependent variable of GPA in Question One, three Analyses of Covariances (ANCOVAs) were conducted.

The first ANCOVA was conducted while controlling for Dropout Proneness Score with the mentoring treatment and age group as the independent variables and retention as the dependent variable. The main effect of age group was found to be significant, $F(3, 175) = 6.55$, $p < .01$ ($\eta^2 = .10$) (see Table 8). Age group has four levels and therefore suggested a post-hoc test would provide useful information.

Table 8

ANCOVA Summary for Retention

Source	SS	df	MS	F
Dropout	1.99	1	1.99	.52
Age Group	74.88	3	24.96	6.55*
Error (Within)	667.16	175	3.81	
Total	743.66	179		

*$p < .01$

A post-hoc test using Tukey-Kramer MCP was conducted. The 15-19 and 30-39 age groups' retention was significantly higher than the 20-29 age group's retention with the 30-39 age group having a greater retention than the 15-19 age group. The 40+ age group's retention did not significantly differ from any of the other age groups' retention.

These results were consistent with those of Question One where the researcher conducted an ANOVA using the same variables of mentoring treatment and age group as the independent variables and retention as the dependent variable.

In the second ANCOVA, the researcher controlled for Dropout Proneness Score with the age group as the independent variable and GPA as the dependent variable. The main effect of age group was found to be significant, $F(3, 175) = 3.59$, $p < .05$ ($\eta^2 = .06$) (see Table 9). Age group has four different levels and therefore suggested a post-hoc test would provide useful information.

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Table 9

ANCOVA Summary for GPA

Source	SS	df	MS	F
Dropout	.79	1	.79	.49
Age Group	17.88	3	5.60	3.59*
Error (Within)	290.66	175	1.66	
Total	309.39	179		

*$p < .05$

A post-hoc test using Tukey-Kramer MCP was conducted. The 15-19 age group's GPA was significantly higher than the 20-29 age groups' GPA. The other age group's GPA did not significantly differ from any of the other age groups' GPA.

Next the researcher, in the third ANCOVA, controlled for Dropout Proneness Score while using the independent interaction variable of gender member and mentoring treatment with the dependent variable of GPA. There was no statistical significance found.

In summary the results indicated that when Dropout Proneness Score was controlled in two ANCOVAs, the main effect of age group was significant when using a dependent variable of retention. In the other two ANCOVAs, when the researcher controlled for Dropout Proneness Score, the effects were no longer significant for the interaction effect of mentoring treatment and gender member with the dependent variable of GPA and the main effect of age group with a dependent variable of GPA. Although Question Two results only indicated one significant main effect of age group, the

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researcher still wanted to know if Dropout Proneness Score could predict retention and GPA. Therefore, the researcher then shifted focus to addressing Question Three.

Question Three

Which students grouped by Dropout Proneness Score predict the greatest retention or grade point average over five semesters?

Ho3: Dropout Proneness Score cannot predict the student groups that will have the greatest retention or grade point average over five semesters.

In order to combine the Fall 1997 and Fall 1998 at-risk students to provide a larger sample, the researcher conducted a series of independent-measures *t* tests. The results showed that when the demographic variables of age group, ethnicity, marital status, and gender were compared they were not significantly different. Therefore, because the two samples were not different the researcher combined the Fall of 1997 and 1998 at-risk students into one sample.

The researcher next conducted a linear regression with the independent variable of Dropout Proneness Score and dependent variable of retention. The independent variable did not significantly explain the variation in the dependent variable.

The researcher next conducted a linear regression with the independent variable of Dropout Proneness Score and dependent variable of GPA. The independent variable did not significantly explain the variation in the dependent variable.

Summary

The analysis of Question One indicated that there were three statistical significant differences. The significant differences were the interaction of mentoring treatment and

gender member with the dependent variable of GPA in the first ANOVA, the main effect of age group with a dependent variable of retention in the second ANOVA, and the main effect of age group with a dependent variable of GPA in the third ANOVA. The researcher in Question Two took the three significant effects and conducted three ANCOVAs while controlling for Dropout Proneness Score. The results showed that the main effect of age group with a dependent variable of retention and age group with a dependent variable of GPA were significant. The other effect of the interaction of mentoring and gender was no longer significant. The analysis of Question Three indicated that Dropout Proneness Score could not significantly predict either retention or GPA.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is organized to show an overview of the study. This chapter includes the purpose of the study, analysis of the three study questions, conclusions, discussion, and recommendations.

The purpose of this longitudinal study was to examine the effects of a mentoring intervention program on retention and grade point average of students at a two-year community college and determine the group of at-risk students, identified by Dropout Proneness Score, that will benefit the most from the mentoring intervention based on retention and GPA. A review of the literature suggested three questions that should be addressed. Therefore, the following analysis addresses these three questions.

Analysis of Research Questions and Conclusions

Question One

Is there a difference in retention or GPA over a three-year period of the identified at-risk students that receive the New Dimensions mentoring intervention versus the students that do not receive the intervention when considering the demographic variables of age, ethnicity, marital status, and gender?

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H_o1: The retention or grade point average of those students receiving the mentoring intervention will not be significantly different than of those students not receiving the program.

A number of researchers' studies have indicated that mentoring improves retention of college students (Brawer, 1996; Campbell-Prealta, 1995; Credle, 1991; Lee, 1999; Parker, 1997). Additionally, Johnson's (1997) research points out that retained students had a higher GPA than dropout students. Based on this previous research, this researcher expected the New Dimensions mentoring intervention would have a positive effect. Thus, the mentored students would have higher GPAs than those not receiving the intervention. Analysis of the data indicated that in this sample males benefited the most from the intervention. The mentored male students had the highest GPAs, followed by the non-mentored female students, the mentored female students, and the non-mentored male students. Further, female students that were mentored had lower grade point averages than the ones that did not receive the intervention. It was speculated that the 15 to 19 and the 20 to 29 age groups would have a higher GPA than the older age groups due to the younger students recent familiarity with the school environment in high school. The results showed that the 15 to 19 and 30 to 39 age groups that received the intervention had higher GPAs than the ones that did not. The 20 to 29 age group showed no difference and the 40+ age group of students that was mentored had a lower GPA than those that did not receive the mentoring intervention. Additionally, the 30 to 39 age group was found to have a much higher GPA than even the 20 to 29 age group.

Hoyt's (1999) research indicated older adults had been attending college to prepare for a second career or update their knowledge and skills for the changing work

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environment. In this study the students in the 30 to 39 age group may have achieved a higher GPA than the younger age groups because they were more motivated to improve their job opportunities.

The researcher anticipated that the mentored students would retain at a higher rate than the non-mentored students based on previous research (Brawer, 1996; Campbell-Prealta, 1995; Credle, 1991; Lee, 1999; Parker, 1997). Additionally, it was expected that the 15 to 19 and the 20 to 29 age groups would have a higher rate of retention than the older age groups because of the stigma associated with older students coming back to school after being out of the education system (Hoyt, 1999). The results indicated that in the 30 to 39 age group the students that received the mentoring intervention retained at a higher rate than the students that did not have the intervention. In the other age groups, the students that did not receive the mentoring intervention retained at a higher rate than those that did have the intervention. Additionally, within the mentored group the 30 to 39 age group's average semesters completed was three times as much as the 20 to 29 age group's average semesters completed. On average, the 30 to 39 year old age group also had an additional semester beyond the 15 to 19 age group. Elizabeth and Richard Liu (1999) determined in their research that younger students had a higher graduation rate. Clearly, this study's results does not concur with Liu and Liu's (1999) findings and suggest that other factors not considered in this study may have had an impact.

This study was an extension and expansion of Cousert's (1999) research. Cousert applied a mentoring intervention for one semester and evaluated student improvement in a reading course grade and reenrollment for the next semester. His study showed a significant reading course grade improvement for the students who were mentored.

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Nonetheless, the limitations of Cousert's study were that the mentoring intervention was only applied for one semester and retention was evaluated only for the semester following the intervention. Therefore, this study looked at the mentoring intervention and its effect on retention and GPA over a three-year period. While mentoring did impact grade improvement in the semester of the intervention (Cousert, 1999), in this three-year study it had no impact on GPA. These results are not surprising in Vincent Tinto's view (Tinto, 1975). Tinto suggested that retention is not a one-time fix but needs to be addressed long-term if it is to be impacted. It may be that conducting a mentoring intervention for only one-semester will not impact retention and GPA long-term.

Question One results indicate the mentoring intervention as applied did not improve GPA or retention. Differences found between the mentored and non-mentored groups and differences found based on demographics appear minimal and/or appear inconsistent across the sample.

In summary, the results from Question One are not what the researcher anticipated, are not easily explained, and suggest that further research is needed before any suppositions regarding the mentoring program can be confidently assumed.

Question Two

When holding all significant extraneous independent variables constant, what systematic effect does Dropout Proneness Score have on retention or GPA?

Ho2: Dropout Proneness Score has no systematic effect on retention or grade point average.

Tabachnick and Fidell (1989) stated an ANCOVA is conducted to decrease the error term and minimize the differences that are not associated with a treatment and

indicate a more powerful test of differences. The researcher conducted three Analyses of Covariances (ANCOVAs) using the variables in which significance was noted in Question One to determine if Dropout Proneness Score had a systematic effect on retention or GPA. The three significant effects from Question One were the interaction effect of mentoring and gender with a dependent variable of GPA, the main effect of age group with a dependent variable of retention, and the main effect of age group with a dependent variable of GPA.

No differences in retention were noted based on the interaction of gender and mentoring when Dropout Proneness Score was controlled. However, when the researcher controlled for Dropout Proneness score, age group was significant with a dependent variable of retention. The results suggest that age group may play a role in retention with the 30 to 39 age group having the greatest retention, next the 15 to 19 age group, and lastly the 20 to 29 age group. The 30 to 39 age group retained at three times the number of semesters the 20 to 29 age group did and this is consistent with the findings of Question One.

Further, when the researcher controlled for Dropout Proneness score, significant differences in age group with a dependent variable of GPA were observed. But the results again suggest age group may play a role in GPA and indicate that the 15 to 19 age group had significantly higher GPAs than the 20 to 20 age group in Question One and Question Two.

In summary, the results from Question Two were mostly inconsistent with what theory and other research would predict. Stratil's (1988b, 2001) research says Dropout Proneness Score of the College Student Inventory is a valid predictor of retention.

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Tabachnick and Fidell (1989) stated an ANCOVA should decrease the error term and indicate a more powerful test of differences. Based on both of these pieces of data the researcher expected the results from the three ANCOVAs to show a more powerful test of differences and decreases in the error terms. Neither of these occurred in the analysis of Question Two. Again, the main effects of age group with retention and GPA as the dependent variables and controlling for Dropout Proneness Score continued to show significance as indicated in Question One, but no other significant effects were demonstrated. These results suggest Dropout Proneness Score did have some impact on retention and GPA and according to Stratil (2001) may have been a strong predictor of retention and GPA.

Question Three

Which students grouped by Dropout Proneness Score predict the greatest retention or GPA over five semesters?

Ho3: Dropout Proneness Score cannot predict the student groups that will have the greatest retention or grade point average over five semesters.

Stratil (1988b, 2001) indicated that the College Student Inventory's Dropout Proneness Score was a valid predictor of retention and GPA. This would imply that Dropout Proneness Score would be correlated to and have a linear relationship with retention and GPA. Based upon Stratil's (1988b, 2001) research, the researcher conducted two simple linear regressions. No significant correlations were found between Dropout Proneness Score and retention, nor between Dropout Proneness Score and GPA. Unexpectedly, the correlation coefficients were very small and were not found to be significant. Further, Dropout Proneness Score could not predict retention and/or GPA.

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Based on studies of the College Student Inventory and the ability of the Dropout Proneness Score to predict student retention (Stratil, 2001; Stratil, Schreiner, & Noel, 1993), the researcher expected Dropout Proneness Score would have been a strong predictor of GPA and retention. Further, the results of Question Two suggested the same. Nonetheless, in this study sample, Dropout Proneness Score was not a predictor of GPA or retention. Since other research (Stratil, 2001; Stratil, Schreiner, & Noel, 1993) has suggested the opposite and the results of Question One and Two of this study were inconclusive, it seems likely that other unexplained factors have affected this study's results. Again, this study's results are not easily explained and suggest that further research should include other variables such as family and student attributes. This is needed before any suppositions regarding the New Dimensions mentoring program can be confidently assumed.

Discussion

After completing the analyses presented in this study, the researcher has further insights into the outcomes of the study. First, the College Student Inventory Dropout Proneness Scores were the results of students reporting information that may not have been reflective of their true selves. Sometimes students may answer survey instruments to make themselves sound better than their situation truly is. For example, students may put down they graduated in the upper third of their class rather than the middle third in order to feel better about themselves.

Second, the mentoring intervention was only applied for one-semester, and therefore, may not have been effective over a three-year period. Tinto (1975) suggested

in his study that an intervention needed to be applied over time and not just once to be effective for the long-term.

Third, some at-risk students dropped out before the intervention was applied. Anecdotally, the researcher participated as a mentor in the New Dimensions. Some of the at-risk students did not continue going to their classes nor did they show up for even one counseling session. Therefore, these students did not receive the benefits of the intervention.

Fourth, this study did not identify degree and non-degree seeking students, and that may have had an impact. Non-degree students may be more likely to dropout at a rate higher than degree seeking students. Ivy Tech State College students change their degree seeking status often and their original degree data status is not archived. The researcher therefore could not go back in the archival data and determine the at-risk students original degree seeking status. Some non-degree seeking students were included in the study but could not be identified.

Fifth, the New Dimensions was voluntary for the at-risk students, and they therefore took advantage of the mentoring intervention in varying amounts. Anecdotally, the researcher observed personally, as well as verified with a few other mentors, that the assigned at-risk students came to counseling somewhere between zero and five times. Very few attended counseling the same number of times in one semester.

Sixth, this study was based on a single institution setting and has the typical limitation of a one-campus study. Ivy Tech State College has some unique characteristics that may limit the generalization of these results beyond the community college environment. Rose's (1998) research indicated that the local campus' specific

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characteristics need to be considered when developing an effective a retention plan. Until other studies have been conducted with other types of institutions and with a full range of variables, generalization of these results beyond the current setting should be done with caution.

Recommendations for Future Study

Based on the findings and conclusions of this study the following suggestions are offered:

1. This study should be replicated at Ivy Tech State College—Central Indiana. Before replication begins, the mentoring intervention should undergo a review to insure the intervention and mentor expectations are precisely defined. During the study the intervention should be monitored to assure that it is carried out in a consistent and purposeful manner.
2. This study should be replicated with a design that allows variation in the length of the intervention. As Tinto (1975) has suggested, intervention may need to be conducted for more than one-semester.
3. Replicate this study with additional variables such as work schedules, course load, family attributes, post-college opportunities, and other types of support received by students.
4. Replicate this study at other community colleges to gain information that would be relevant to their particular campuses.
5. Additional research should be conducted using Dropout Proneness Score as a predictor of retention and grade point average.

Summary

In conclusion, this study addressed the mentoring intervention of the New Dimensions at Ivy Tech State College—Central Indiana. The study results indicated that the mentoring intervention and demographic variables of ethnicity, age group, marital status, and gender did not have an effect on student retention and GPA over a three-year period. Although the study design was theoretically correct, the results were not congruent with previous research referenced in this chapter of the study. Other factors that were not part of this study may have contributed to the study findings as discussed above. Therefore, the study results should be interpreted in the context of a much larger picture. It would not be prudent to use these results to suggest there is a clear indication New Dimensions is not increasing student retention or grade point average of at-risk students. Rather, this study's findings demand replication with changes in research design to address concerns and insights that only became clear as a result of this study. Such additional research should clarify and quantify the contribution of the mentoring intervention of the New Dimensions program.

REFERENCES CITED

Allen, D.F. & Nelson, J.M. (1987). *Tinto's model of college withdrawal applied to women in two institutions.* (ERIC Document Reproduction Service No. ED303214)

American College Testing. (2001, April 26). *More first-year college students return for the second year; fewer students graduate in five years.* Retrieved January 31, 2002, from http://www.act.org/news/releases/2001/04-26-01.html.

Bean, J.P. & Metzner, B.S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55,* 485-540.

Boylan, H. & Bonham, B.S. (1992). The impact of developmental education programs. *Review of Research in Developmental Education, 9,* (5).

Brawer, F.B. (1996). *Retention-Attrition in the Nineties.* (ERIC Document Reproduction Service No. ED393510)

Cabera, A.F., Nora, A. & Castañeda, M.B. (1993). College persistence: structural equations modeling test of an integrated model of student retention. *Journal of Higher Education, 64*(2), 123-139.

Campbell-Peralta, P.J. (1995). *Reducing suspensions of minority males through a group guidance/mentoring intervention program.* (ERIC Document Reproduction Service No. ED394094)

Clark, Kim, and others. (1995). *SELECT: Achieving and rewarding excellence in faculty advising.* (ERIC Document Reproduction Service No. ED382264)

BEST COPY AVAILABLE

Collins, E.H. (1986). *A study of factors related to persistence of students in a statewide practical nursing program.* Unpublished doctoral dissertation, Indiana University, Indiana.

Cousert, D. (1999). *The effects of a mentoring intervention program of retention of students in a community college.* Unpublished doctoral dissertation, Purdue University, Indiana.

Credle, J.O. (1991). A comprehensive model for enhancing student retention in higher education. *Journal of Multicultural Counseling & Development, 19,* 158-166.

Durkheim, E. (1961). *Suicide* (John A. Spaulding & George Simpson, Trans.). Glencoe, IL: The Free Press.

Fenske, R., Geranios, C., Keller, J., & Moore, D. (1997). *Early intervention programs: Opening the door to higher education.* (ERIC Document Reproduction Service No. ED412862).

Gaustad, J. (1991). *Identifying potential dropouts.* (ERIC Document Reproduction Service No. ED339092)

Geiger, M.A., & Cooper, E.A. (1993). Predicting academic performance: The impact of expectancy and needs theory. *Journal of Experimental Education, 51*(1), 251-262.

Grimes, S.K. & David, K.C. (1999). Underprepared community college students: Implications of attitudinal and experimental differences. *Community College Review, 27,* 73-92.

Haplin, R. (1990). An application of the Tinto model to the analysis of freshman persistence in a community college. *Community College review, 17*(4), 22-33.

BEST COPY AVAILABLE

Henry, T.C. & Smith, G.P. (1994). Planning student success and persistence: Implementing a state system strategy. *Community College Review, 22*(2), 26-37.

Holton, J.M. (1998). Whatever happened to the class of 1994? *A three-year longitudinal study of traditional freshmen entering Frederick Community College in the Fall 1994 semester.* (ERIC Document Reproduction Service No. ED419568)

Hoyte, J. (1999). Remedial education and student attrition. *Community College Review, 26,* 51-72.

Johnson, J.L. (1997). Commuter college students: What factors determine who will persist and who will drop out? *College Student Journal, 31*(3), 323-332.

Kayser, T.F. (1994). *A causal-comparative study to test the construct of educational adjustment for postsecondary vocational students.* Unpublished doctoral dissertation, University of Minnesota, Minnesota.

Kerka, S. (1989). *Retaining adult students in higher education.* (ERIC Document Reproduction Service No. ED308401)

Krotseng, M.V. (1991). *Predicting persistence from the student adaptation to college questionnaire: Early warning or siren song.* AIR 1991 Annual Forum Paper.

Lauer, J., & Asher, J.W. (1988). *Composition research empirical designs.* Oxford, NY: Oxford University Press.

Lee, W.Y. (1999). Striving toward effective retention: The effect of race on mentoring African American students. *Peabody Journal of Education, 74,* 27-44.

Lui, E., & Lui, R. (1999). An application of Tinto's model at a commuter campus. *Education, 119,* 537-543.

BEST COPY AVAILABLE

Luna, G., & Cullen, D.L. (1995). *Empowering the faculty: Mentoring redirected and renewed.* ASHE-ERIC Higher Education Report No. 3. (ERIC Document Reproduction Service No. ED399889).

Martin, S.A. (1999). *Early intervention program and college partnership.* (ERIC Document Reproduction Service No. ED435383)

Mason, H. (1998). A persistence model for African American male urban community college students. *Community College Journal of Research & Practice, 22*(8), 751-760.

McClelland, D.C., Atkinson, J.W., Clark, R.A., &Lowell, E.L. (1952). *The achievement motive.* New York: Appleton-Century-Crafts.

Parker, C.E. (1997). Making retention work. *Black Issues in Higher Education, 13,* 120-128.

Pascarella, E.T. (1984). College environmental influences on students' educational aspirations. *Journal of Higher Education, 55,* 751-771.

Pascarella, E.T. & Terenzini, P.T. (1980). Predicting freshman persistence and voluntary dropout decision from a theoretical model. *Journal of Higher Education, 51*(1), 51, 60-75.

Reisberg, L. (1999). Colleges struggle to keep would-be dropouts enrolled. *The Chronicle of Higher Education, 46,* A54.

Rose, A. (1998). Supporting student persistence. *Black Issues in Higher Education, 15,* 104-109.

Rothman, B.K. (2001). Sometimes, being a mentor is a personal call. *Chronicle of Higher Education,* b5.

BEST COPY AVAILABLE

Ryland, E.B., Riordan, R.J., & Brack, G. (1994). Selected characteristics of high-risk students and their enrollment persistence. *Journal of College Student Development, 35,* 54-58.

Sagy, S. (2000). Factors influencing early dropout. *Journal of Applied Behavioral Science, 36*(3), 362-376.

Sandel, R.H. & Sydow, D. (1997). Advances and a retreat in student retention. *Inquiry* 1, 67-70.

Spady, W.G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1*(3), 109-121.

Stratil, M.L. (1984). *Counseling inventory – college form.* Lumberton, NC: Psychological Configurations.

Stratil, M.L. (1988a). *College Student Inventory.* Iowa City: Noel-Levitz Centers for Institutional Effectiveness and Innovation.

Stratil, M.L. (1988b). *The RMS interpretive guide for advisors and counselors.* Coralville, IN: Noel-Levitz Centers for Institutional Effectiveness and Innovation.

Stratil, M.L. (2001). *The RMS research and technical manual.* Coralville, IN: Noel-Levitz Centers for Institutional Effectiveness and Innovation.

Stratil, M.L., Schreiner, L.A., & Noel, P. (Eds.). (1993). *Coordinator's manual retention management system.* National Center for Student retention. USA Group Noel-Levitz.

Tabachnick, B.G. & Fidell, L.S. (1989). *Using Multivariate Statistics* (2nd Ed.). New York: Harper & Row, Publishers, Inc.

Tharp, J. (1998). Predicting persistence of urban commuter campus students utilizing student background. *Community College Journal of Research & Practice, 22,* 279-295.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student retention.* Chicago: The University of Chicago Press.

Tinto, V. (1993). *Leaving college* (2nd Ed.). Chicago: University of Chicago Press.

Tinto, V. & Goodsell-Love, A. (1993). Building community. *Liberal Education, 79,* 16-21.

Trusty, J.S. & Dooley-Dickey, K. (1991). *At-risk students: A profile for early identification.* Paper presented at the Annual convention of the American Association for Counseling and Development, Reno, NV.

Umoh, U. J. & Eddy, J. (1994). Factors related to student retention in community college developmental education mathematics. *Community College Review, 22,* 37-48.

Vroom, V. (1964). *At risk non-traditional community college students.* Paper presented at the Annual International Conference of the National Institute for Staff and Organizational Development on Teaching Excellence and Conference of Administrators, Austin, TX.

Zusman, A. (1999). Issues facing higher education in the twenty-first century. In P. G. Altbach, R. O. Berdahl, & P. J. Gumport (Eds), *American higher education in the twenty-first century,* 109. Baltimore, MD: The John Hopkins University Press.

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APPENDIXES

APPENDIX A

IVY TECH STATE COLLEGE - CENTRAL INDIANA REGION

NEW DIMENSIONS

There is a need for quantifiable research in the area of retention management. Ivy Tech State College - Central Indiana Region experiences a comparable retention rate to many two-year colleges of around 42 percent for degree seeking students. Many of the students in the attrition group stop in and stop out over several years, and may eventually complete their degree. These students may not be included in the retention count based on the designated time frame. Some degree seeking students do drop out for various reasons. The additional concern is that although many students in "Courses Only" status are happy with completing that goal, there may be included in this group some students who drop out because of problems that could have been managed if identified and dealt with early.

The underlying philosophy of this project is that often the approach of retention programs is after-the-fact identification of the reasons why students drop out. The problem with that approach is that once the student has left the institution it is often too late for intervention, even if the problem is known.

New Dimensions is an attempt to establish early identification of potential drop outs and to provide intervention to help retain the students.

This project utilizes the USA Group Noel-Levitz Retention Management System to predict potential dropouts out of a group of students enrolled in basic skills assessment (BSA) courses. A pilot is currently underway to establish the best process for administering the Retention Management System instruments. The pilot is also designed to get feedback from the counselor/mentors about both the training they receive and the overall program design.

The major objective of the project will be to see if there is a retention difference between those students involved in an intervention process and those students not involved in an intervention process. Specifically, those students who are identified as potential dropouts and receive special

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counseling/mentoring will be compared to predicted potential dropouts who go through the usual college processes. Within the study, students will also be identified as to whether they have a degree seeking or "courses only" academic goal. All students will be informed about available career counseling, advising assistance, computer aided instruction, availability of student organizations, and tutoring assistance. Half of the students identified in the potential dropout group will be involved in receiving intense counseling/mentoring intervention. Small groups (five or less) of the students in the intervention group will be assigned to a counselor/mentor. This proactive intervention program will be individualized to each student participant. Information from the Retention Management System report as well as student interviews will provide information to develop individualized retention management plans for each student.

Retention of the potential-dropout-with-intervention group and the potential-dropout-without-intervention group will be compared. This will allow analysis of whether the special intervention program has made a difference.

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APPENDIX B

New Dimensions Student Briefing

I. Introduction

A. Self

B. New Dimensions Program areas of concerns & help

NARRATIVE - Your success and resources (CAI, student organizations, tutoring labs)

1. Most of the students will receive the College Student Inventory (CSI) results, but some will not because:

a. The student did not complete enough questions on the CSI for it to be evaluated, or

b. The student did not take the CSI at all

II. Results

A. The results of the CSI are based on the students' answers.

1. Some students indicated a concern or two or even no areas of concern

2. Some students indicated several areas of concern

NARRATIVE

In both cases, we want you to be reminded of the important information from the Student Handbook. (Pass out handbook)

Turn to specific pages in the Success Seminar Orientation Information Handbook for the following information:

- Page 21 - Freshman Academic Advising Offices
- Page 54 – Testing and Assessment Center
- Page 46 – Disability Support Services
- Page 4 – CAI/Testing Tutoring Lab
- Page 25-39 - Financial Assistance
- Page 39 – Withdrawal from Class - Drop/Add form
- Page 44-45 - Clubs and Organizations
- Page 73-75 - Program Chair Directory

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- Page 61-72 - Rules and Regulations
- Page 62 - Children on Campus
- Page 62 - Electronic Equipment or Programs

III. College Student Inventory

A. Remind students that even if they did not complete the College Student Inventory that if they have areas of concern they should either use the Handbook to go directly to the area that can assist them OR:

1. talk with their instructor
2. go to either the Counseling or the ACCESS offices to find the best direction for action

B. Tell students that those with one or two concerns should go directly to the source of assistance (point to the Handbook and Instructor). Note that some students had several areas of concern. To help the student coordinate directions, there is a mentor's name, room number, and phone number at the top of the first page of the CSI results.

C. Go briefly through the CSI (see attached example)

(NOTE: suggest that the students need to look at the CSI at home.)

1. Instructions: ask student to read
2. Specific Recommendations: ask students to look at very carefully, especially those **above an 8.0**

(Terms defined on following pages)

3. Motivational Assessment: IMPORTANT - "fear" may create the Very Low (VL) category response
4. Student Background information - your answers see if anything like the Fine Arts category can help you on your plans, i.e.; may want to take graphics class
5. Descriptions - each major term is described on the attached pages. If you have any questions, then ask (the instructor).

NARRATIVE

Your success is important to us.

Any questions?

Please complete on a separate sheet of paper (hand out) your name, mailing address, and contact phone number. This is confidential information and is only given to the counselors. (We need this

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because people may have moved and changed their address and/or their phone number. If so, ask the student to please circle the new information.)

Reminder - If there are any questions, please contact Counseling or ACCESS or ask (instructor's name).

Thank you for your time.

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APPENDIX C

New Dimensions

- MENTOR'S GUIDE -

PURPOSE

The purpose of the mentor-student relationship is to enhance the students' involvement in their educational institution (Ivy Tech) for growth and development and to provide linkages to the student to services and processes necessary for success.

ESTABLISH CONTACT

Make contact with students

a. Phone
b. Postcard

THE FIRST CONFERENCE

Review the College Student Inventory results with the student

Complete the Individualized Action Plan (IAP)

a. Explain success - regular contact
b. Determine area(s) of need/concern
c. Agree on actions/strategies for each concern
d. Set up regularly scheduled meetings
e. Proactive referral
f. Student Handbook

FOLLOW UP

Follow up conferences or contacts

a. Scheduled conferences
b. Phone to student
c. Postcard - internal to student
d. Postcard - external to student

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APPENDIX D

New Dimensions Action Plan

STUDENT NAME _____ SOCIAL SECURITY NUMBER _____

ADDRESS _____ TELEPHONE NUMBER _____
(where mail is received) (where student can be contacted

COUNSELOR _____

	CONCERN	TIMELINE (DATE)
1		
2		
3		
4		
5		
6		
7		

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